We thus obtain

$$f'^3 + 2Ff' = \frac{F^2}{15A}; \quad \phi = \frac{f'}{2}\left(1 + \frac{F}{30A}\right);$$

whence

$$2b = 0{\cdot}2308 = 2{\cdot}77 \text{ inches.}$$
$$f' = 0{\cdot}2998 = 3{\cdot}60 \quad ,,$$
$$M = 240.$$
$$\theta = 13'{\cdot}46.$$

"The field here is nearly the same as in the Cassegrain; with the single lens it is something larger, which arises from that lens acting differently in the two cases, in that it diminishes the image, and therefore requires an increased value of d'."

DECEMBER 12TH, 1853.

THOMAS ROMNEY ROBINSON, D. D., PRESIDENT, in the Chair.

THE REV. H. LLOYD, D. D., read a supplemental note "on the magnetic influence of the moon."

In a previous communication* the author had shown, from a discussion of the observations made at the Magnetical Observatory of Dublin, that the magnetic declination was subject to a small periodical variation dependent upon the moon's hour-angle, the north pole of the magnet deviating twice to the east, and twice to the west, in the course of the lunar day. It was, of course, to be expected that a similar variation would be found to affect the other two magnetic elements. In order to trace its existence, and to determine its law, in the case of the horizontal component of the magnetic intensity, the author

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* Proceedings, May 9, 1853.

zontal intensity is a *minimum* at about 2 and 16 (lunar) hours, and a *maximum* at about 8 and 20 hours. The mean amount of the fluctuation is 86 millionths of the intensity, when the moon is to the east of the meridian, and 185 millionths, when it is to the west.

The summer and winter lunations yield analogous results. These are given in the following Table:—

TABLE II.—*Diurnal Variation of the Horizontal Intensity related to the Moon's Hour-Angle, in Summer and in Winter.*

Hours.	Summer.	Winter.
0	+ 8	− 21
2	− 104	− 51
4	− 77	+ 27
6	+ 6	+ 32
8	+ 96	+ 119
10	+ 77	+ 74
12	+ 57	− 5
14	+ 9	− 22
16	− 80	− 69
18	− 39	− 46
20	+ 21	+ 4
22	+ 27	− 42

If it be assumed that the total intensity undergoes no change,—or, in other words, that the variation above deduced is produced by a change in the inclination alone,—we can infer the latter. Its law will of course be similar to that of the horizontal intensity, the greatest inclination corresponding to the least intensity, and *vice versâ*. The total amount of the change, on this supposition, is 0′·22, or about one-fourth of the corresponding change of the declination. The magnitude of the change of direction of the resultant magnetic force in the perpendicular plane (= change of declination × cos inclination) is 0·27.

has since discussed the two-hourly observations made with the bifilar magnetometer in the years 1841, 1842, 1843, the whole series being re-arranged according to the moon's hour-angle, in the manner already described in the corresponding investigation relating to the declination. No correction has been applied for temperature, the effect of the diurnal variation of temperature being assumed to be eliminated in this mode of grouping the results.

The following Table contains the yearly mean results for the several lunar hours, reckoned from the time of the moon's upper meridian passage. The numbers are the differences between the horizontal intensity at each hour, and that of the entire day, expressed in millionths of the intensity. The results are given for each year separately, and for the mean of the three:—

TABLE I.—*Diurnal Variation of the Horizontal Intensity related to the Moon's Hour-Angle. Yearly Means.*

Hours.	1841.	1842.	1843.	Mean.
0	− 45	− 7	+ 34	− 6
2	− 130	− 94	− 9	− 78
4	− 57	0	− 18	− 25
6	+ 5	+ 64	− 11	+ 19
8	+ 173	+ 94	+ 55	+ 107
10	+ 116	+ 80	+ 30	+ 75
12	+ 80	− 4	− 2	+ 25
14	+ 62	− 50	− 32	− 7
16	− 100	− 41	− 82	− 74
18	− 80	− 32	− 14	− 42
20	+ 7	− 25	+ 55	+ 12
22	− 27	+ 9	− 4	− 7

It appears from the foregoing Table that the horizontal component of the magnetic intensity is subject to a periodical variation in the course of the lunar day, analogous to that already established in the case of the declination. The hori-

Rev. H. Lloyd, D. D., read the second part of a paper "on the Meteorology of Ireland, as deduced from the observations made in 1851 under the direction of the Royal Irish Academy."

JANUARY 9TH, 1854.

THOMAS A. LARCOM, ESQ., V. P., F. R. S., &c., in the Chair.

J. Thomas Rosborough Colclough, Esq.; and J. Butler Pratt, Esq., were elected Members of the Academy.

On the recommendation of the Council it was Resolved:—

To insert the following By-Law, between Nos. 6 and 7 of Chap. VII. of the Statutes of the Royal Irish Academy:—

"Donations received and acknowledged."

The Secretary presented, from James F. Bland, Esq., a very exact and beautiful model of that remarkable and curious ancient structure called Staig Fort, situated on the property of Mr. Bland, near Kenmare, county Kerry. The model was made of portions of stone selected from the original building, and constructed on the spot by Messrs. Thomas and William Jermyn, the tenants of the farm on which the Fort stands.

Professor Allman read a paper on the structure of the starch granule obtained from the potato.

The author combated the theory of involution recently proposed by Martin, and modified by Busk; he maintained that the conclusions to which these observers arrived were drawn from incorrect interpretation of the phenomena, and that the appearance of unrolling or unfolding of the granule